

## Technical data sheet

### Diffuse sensor with background suppression

Part no.: 50136449

HT3C.S/4-200-M8.3



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- Dimensioned drawings
- Electrical connection
- Diagrams
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## Technical data

### Basic data

|                     |  |
|---------------------|--|
| Series              | 3C   |
| Operating principle | Diffuse reflection principle with background suppression |
| Application         | Detection of small parts                                 |

### Special version

|                 |                      |
|-----------------|----------------------|
| Special version | Small light spot (S) |
|-----------------|----------------------|

### Optical data

|                            |   |
|----------------------------|---|
| Operating range            | Guaranteed operating range                |
| Operating range, white 90% | 0.005 ... 0.2 m                           |
| Operating range, gray 18%  | 0.01 ... 0.15 m                           |
| Operating range, black 6%  | 0.015 ... 0.12 m                          |
| Operating range limit      | 0.005 ... 0.2 m (typical operating range) |
| Light source               | LED, Red                                  |
| Wavelength                 | 650 nm                                    |
| Transmitted-signal shape   | Pulsed                                    |

### Electrical data

|                    |   |
|--------------------|---|
| Protective circuit | Polarity reversal protection<br>Short circuit protected |
|--------------------|---|

#### Performance data

|                      |  |
|----------------------|--|
| Supply voltage $U_B$ | 10 ... 30 V, DC, Incl. residual ripple |
| Residual ripple      | 0 ... 15 %, From $U_B$                 |
| Open-circuit current | 0 ... 15 mA                            |

#### Outputs

|                                     |            |
|-------------------------------------|------------|
| Number of digital switching outputs | 1 Piece(s) |
|-------------------------------------|------------|

#### Switching outputs

|                         |   |
|-------------------------|---|
| Type                    | Digital switching output                |
| Voltage type            | DC                                      |
| Switching current, max. | 100 mA                                  |
| Switching voltage       | high: $\geq(U_B-2V)$<br>low: $\leq 2 V$ |

#### Switching output 1

|                     |                     |
|---------------------|---------------------|
| Assignment          | Connection 1, pin 4 |
| Switching element   | Transistor, PNP     |
| Switching principle | Light switching     |

### Time behavior

|                     |          |
|---------------------|----------|
| Switching frequency | 1,000 Hz |
| Response time       | 0.5 ms   |
| Readiness delay     | 300 ms   |

### Connection

|                       |            |
|-----------------------|------------|
| Number of connections | 1 Piece(s) |
|-----------------------|------------|

### Connection 1

|                    |                              |
|--------------------|------------------------------|
| Function           | Signal OUT<br>Voltage supply |
| Type of connection | Cable with connector         |
| Cable length       | 200 mm                       |
| Sheathing material | PUR                          |
| Cable color        | Black                        |
| Wire cross section | 0.2 mm <sup>2</sup>          |
| Thread size        | M8                           |
| Type               | Male                         |
| Material           | Metal                        |
| No. of pins        | 3 -pin                       |

### Mechanical data

|  |   |
|--|---|
| Dimension (W x H x L)                          | 11.4 mm x 34.2 mm x 18.3 mm                           |
| Housing material                               | Plastic   |
| Plastic housing                                | PC-ABS  |
| Lens cover material                            | Plastic / PMMA  |
| Net weight                                     | 10 g  |
| Housing color                                  | Red   |
| Type of fastening                              | Through-hole mounting<br>Via optional mounting device |
| Recommended tightening torque for M3 fastening | 0.9 N·m   |
| Compatibility of materials                     | ECOLAB  |

### Operation and display

|                                     |                         |
|-------------------------------------|-------------------------|
| Type of display                     | LED                     |
| Number of LEDs                      | 2 Piece(s)              |
| Operational controls                | Multiturn potentiometer |
| Function of the operational control | Range adjustment        |

### Environmental data

|                                |               |
|--------------------------------|---------------|
| Ambient temperature, operation | -40 ... 60 °C |
| Ambient temperature, storage   | -40 ... 70 °C |

### Certifications

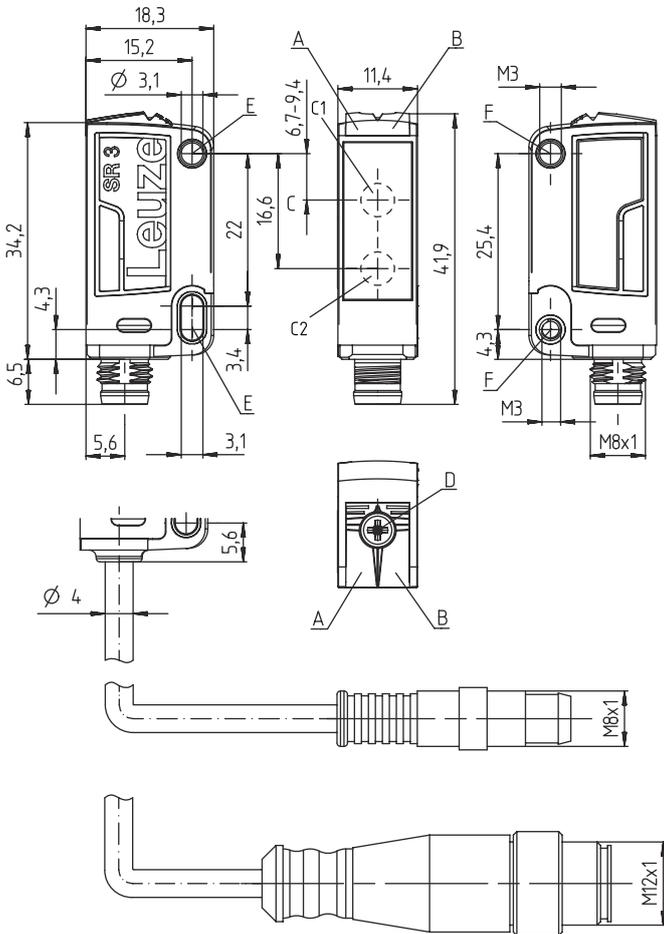
|                      |                 |
|----------------------|-----------------|
| Degree of protection | IP 67<br>IP 69K |
| Protection class     | III             |
| Approvals            | c UL US         |

### Classification

|                       |          |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| ECLASS 5.1.4          | 27270904 |
| ECLASS 8.0            | 27270904 |
| ECLASS 9.0            | 27270904 |
| ECLASS 10.0           | 27270904 |
| ECLASS 11.0           | 27270904 |
| ECLASS 12.0           | 27270903 |
| ECLASS 13.0           | 27270903 |
| ECLASS 14.0           | 27270903 |
| ECLASS 15.0           | 27270903 |
| ECLASS 16.0           | 27270903 |
| ETIM 5.0              | EC002719 |
| ETIM 6.0              | EC002719 |
| ETIM 7.0              | EC002719 |
| ETIM 8.0              | EC002719 |
| ETIM 9.0              | EC002719 |
| ETIM 10.0             | EC002719 |

# Dimensioned drawings

All dimensions in millimeters



- A Green LED
- B Yellow LED
- C Optical axis
- C1 Receiver
- C2 Transmitter
- D Multiturn potentiometer
- E Mounting sleeve (standard)
- F Threaded sleeve (3C.B series)

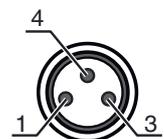
## Electrical connection

### Connection 1

|                    |                              |
|--------------------|------------------------------|
| Function           | Signal OUT<br>Voltage supply |
| Type of connection | Cable with connector         |
| Cable length       | 200 mm                       |
| Sheathing material | PUR                          |
| Cable color        | Black                        |
| Wire cross section | 0.2 mm <sup>2</sup>          |
| Thread size        | M8                           |
| Type               | Male                         |
| Material           | Metal                        |
| No. of pins        | 3 -pin                       |

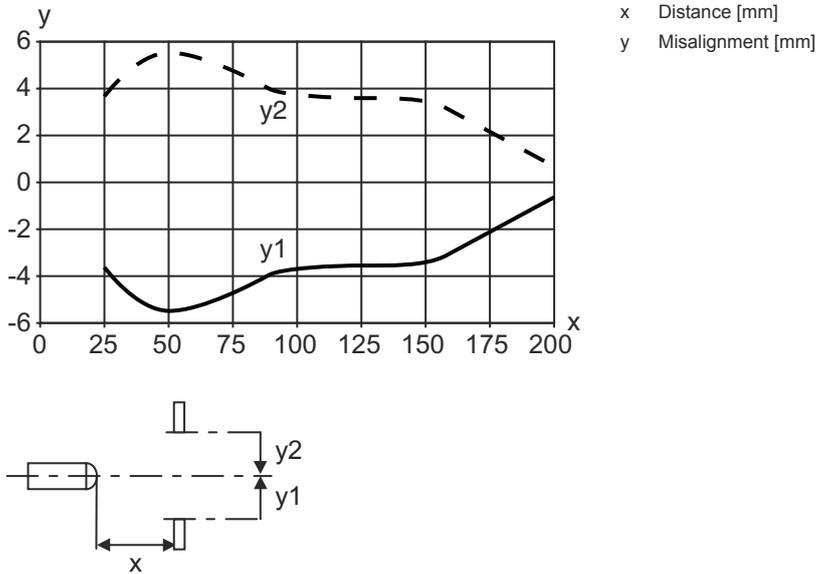
### Pin Pin assignment

|   |       |
|---|-------|
| 1 | V+    |
| 3 | GND   |
| 4 | OUT 1 |

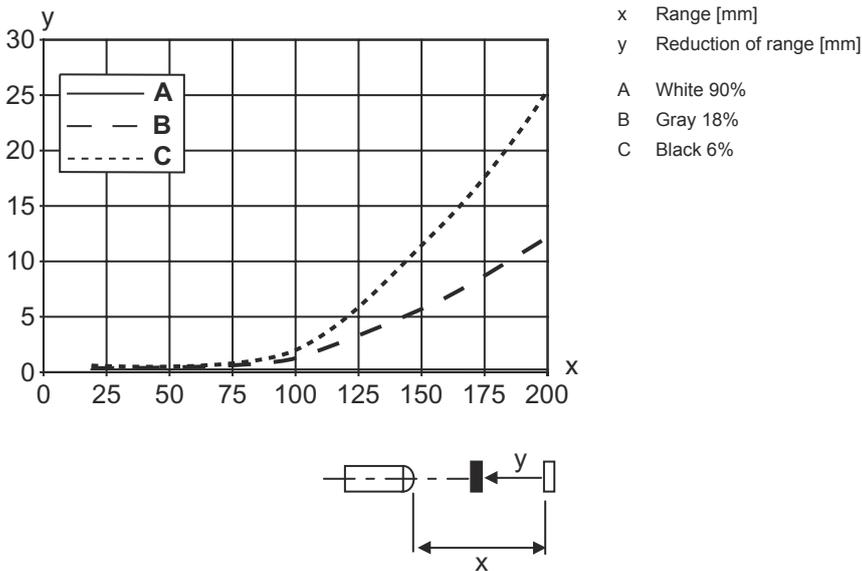


# Diagrams

## Typ. response behavior (white 90 %)



## Typ. black/white behavior



## Operation and display

| LED | Display                  | Meaning               |
|-----|--------------------------|-----------------------|
| 1   | Green, continuous light  | Operational readiness |
| 2   | Yellow, continuous light | Object detected       |

## Part number code

Part designation: AAA 3C d EE-f.GG H/i J-K

|              |  |
|--------------|--|
| <b>AAA3C</b> | <b>Operating principle / construction</b><br>HT3C: Diffuse reflection sensor with background suppression<br>LS3C: Throughbeam photoelectric sensor transmitter<br>LE3C: Throughbeam photoelectric sensor receiver<br>PRK3C: Retro-reflective photoelectric sensor with polarization filter<br>ODT3C: Distance diffuse sensor with background suppression   |
| <b>d</b>     | <b>Light type</b><br>n/a: red light<br>I: infrared light   |
| <b>EE</b>    | <b>Light source</b><br>n/a: LED<br>L1: laser class 1<br>L2: laser class 2<br>PP: Power PinPoint® LED   |
| <b>f</b>     | <b>Preset range (optional)</b><br>n/a: operating range acc. to data sheet<br>xxxF: Preset range [mm]<br>2M: operating range of 2 meters  |
| <b>GG</b>    | <b>Equipment</b><br>n/a: standard<br>A: Autocollimation principle (single lens) for positioning tasks<br>B: Housing model with two M3 threaded sleeves, brass<br>F: Permanently set range<br>L: Long light spot<br>S: small light spot<br>T: autocollimation principle (single lens) for highly transparent bottles without tracking<br>TT: autocollimation principle (single lens) for highly transparent bottles with tracking<br>V: V-optics<br>XL: Extra long light spot<br>X: extended model<br>HF: Suppression of HF illumination (LED)  |
| <b>H</b>     | <b>Operating range adjustment</b><br>n/a with HT: range adjustable via 8-turn potentiometer<br>n/a with retro-reflective photoelectric sensors (PRK): operating range not adjustable<br>1: 270° potentiometer<br>3: teach-in via button<br>6: auto-teach   |
| <b>i</b>     | <b>Switching output/function OUT 1/IN: Pin 4 or black conductor</b><br>2: NPN transistor output, light switching<br>N: NPN transistor output, dark switching<br>4: PNP transistor output, light switching<br>P: PNP transistor output, dark switching<br>6: push-pull switching output, PNP light switching, NPN dark switching<br>G: Push-pull switching output, PNP dark switching, NPN light switching<br>L: IO-Link interface (SIO mode: PNP light switching, NPN dark switching)<br>8: activation input (activation with high signal)<br>X: pin not used<br>1: IO-Link / light switching (NPN) / dark switching (PNP) |
| <b>J</b>     | <b>Switching output / function OUT 2/IN: pin 2 or white conductor</b><br>2: NPN transistor output, light switching<br>N: NPN transistor output, dark switching<br>4: PNP transistor output, light switching<br>P: PNP transistor output, dark switching<br>6: push-pull switching output, PNP light switching, NPN dark switching<br>G: Push-pull switching output, PNP dark switching, NPN light switching<br>W: warning output<br>X: pin not used<br>8: activation input (activation with high signal)<br>9: deactivation input (deactivation with high signal)<br>T: teach-in via cable                                 |

## Part number code

|   |   |
|---|---|
| K   | <b>Electrical connection</b>  |
|   | n/a: cable, standard length 2000 mm, 4-wire                         |
|   | 5000: cable, standard length 5000 mm, 4-wire                        |
|   | M8: M8 connector, 4-pin (plug)                                      |
|   | M8.3: M8 connector, 3-pin (plug)                                    |
|   | 200-M8: cable, length 200 mm with M8 connector, 4-pin, axial (plug) |
| 200-M8.3: cable, length 200 mm with M8 connector, 3-pin, axial (plug) |   |
| 200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug) |   |

### Note



A list with all available device types can be found on the Leuze website at [www.leuze.com](http://www.leuze.com).

## Accessories

### Connection technology - Connection cables

|   | Part no. | Designation       | Article          | Description   |
|---|----------|-------------------|------------------|---|
|   | 50130832 | KD U-M8-3A-V1-050 | Connection cable | Application: Chemical resistant<br>Connection 1: Connector, M8, Axial, Female, 3 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5,000 mm<br>Sheathing material: PVC  |
|  | 50130862 | KD U-M8-3W-V1-050 | Connection cable | Application: Chemical resistant<br>Connection 1: Connector, M8, Angled, Female, 3 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5,000 mm<br>Sheathing material: PVC |

### Mounting technology - Mounting brackets

|   | Part no. | Designation | Article         | Description  |
|---|----------|-------------|-----------------|--|
|  | 50060511 | BT 3        | Mounting device | Design of mounting device: Angle, L-shape<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Screw type<br>Type of mounting device: Rigid<br>Material: Metal |

### Mounting technology - Rod mounts

|   | Part no. | Designation  | Article         | Description   |
|---|----------|--------------|-----------------|---|
|  | 50117255 | BTU 200M-D12 | Mounting system | Contains: 2x M3 x 16 screw, 2 M3 x 20 screws, 2x position washers<br>Design of mounting device: Mounting system<br>Fastening, at system: For 12 mm rod, Sheet-metal mounting<br>Mounting bracket, at device: Screw type, Suited for M3 screws<br>Type of mounting device: Clampable, Adjustable, Turning, 360°<br>Material: Metal |

## Accessories

### Note



🔗 A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.